

WHAT IS CLAIMED IS:

1. A semiconductor laser device comprising:
an active layer; and
a first cladding layer formed on the active layer, the first cladding layer being
5 doped with a first impurity to have a high resistivity.
2. The semiconductor laser device of claim 1, further comprising:
a second cladding layer formed on the first cladding layer, the second cladding
layer being doped with a second impurity to have a resistivity lower than the resistivity of
the first cladding layer.
- 10 3. The semiconductor laser device of claim 2, wherein the first and second
cladding layers are made of respective compound semiconductors having substantially the
same mobilities.
4. The semiconductor laser device of claim 3, wherein
each of the first and second cladding layers is made of a compound semiconductor
15 containing phosphorus,
the first impurity is magnesium, and
the second impurity is zinc.
5. The semiconductor laser device of claim 4, wherein a concentration of the first
impurity in the first cladding layer is not less than $5 \times 10^{16} \text{ cm}^{-3}$ and not more than 1×10^{18}
20 cm^{-3} .
6. The semiconductor laser device of claim 3, wherein the first cladding layer also
contains a third impurity.
7. The semiconductor laser device of claim 6, wherein
each of the first and second cladding layers is made of a compound semiconductor
25 containing phosphorus,

the first impurity is magnesium, and
each of the second and third impurities is zinc.

8. The semiconductor laser device of claim 7, wherein a total concentration of the first and third impurities in the first cladding layer is not less than $1 \times 10^{18} \text{ cm}^{-3}$ and not
5 more than $5 \times 10^{18} \text{ cm}^{-3}$.

9. The semiconductor laser device of claim 3, wherein
each of the first and second cladding layers is made of a compound semiconductor containing arsenic,

the first impurity is carbon, and
10 the second impurity is zinc.

10. The semiconductor laser device of claim 2, wherein the second cladding layer is formed into a ridge-shaped configuration on the first cladding layer.

11. The semiconductor laser device of claim 2, wherein the second cladding layer has a lower portion thereof formed into a stripe configuration.

15 12. A method for fabricating a semiconductor laser device, the method comprising the steps of:

forming an active layer on a substrate; and

forming a first cladding layer on the active layer, while doping the first cladding layer with a first impurity, wherein

20 in the step of forming the first cladding layer, the first impurity is doped so that the first cladding layer has a high resistivity.

13. The method of claim 12, further comprising the step of:

forming a second cladding layer on the first cladding layer, while doping the second cladding layer with a second impurity, wherein

25 in the step of forming the second cladding layer, the second impurity is doped so

that the resistivity of the first cladding layer is higher than a resistivity of the second cladding layer.

14. The method of claim 13, wherein

each of the first and second cladding layers is made of a compound semiconductor

5 containing phosphorus,

the first impurity is magnesium, and

the second impurity is zinc.

15. The method of claim 13, wherein the step of forming the first cladding layer

includes doping the first cladding layer with a third impurity in addition to the first

10 impurity.

16. The method of claim 15, wherein

each of the first and second cladding layers is made of a compound semiconductor
containing phosphorus,

the first impurity is magnesium, and

15 each of the second and third impurities is zinc.